Technology & Innovation

Handheld Computers for Surgical Logbooks

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Abstract
One of my favourite books is Michael Bliss' biography of the great Sir William Osler[1]. Osler is often described as the greatest of all modern physicians, and it is a joy to read about his achievements. One habit that he cultivated and encouraged his trainees to adopt was taking their work with them wherever they went. He hated wasting time, especially waiting in between his formal clinical duties. For example on carriage rides in between appointments, he would read scientific papers.

Had Osler been practicing today, my guess is that he would have bought a handheld computer. On it he would store all the papers that he wanted to study, all the textbooks that he needed to consult, all the articles that he was writing, and a record of all the patients that he had ever treated. For surgeons, that last application is particularly important. Whether you are a trainee who wants to document your experience or a consultant who wants to audit your surgical outcomes, a surgical logbook is an important part of your practice. Handheld computers simplify and advance the task of keeping a logbook, and this article explains how you can go about doing this yourself.

Background
A handheld computer is one that is small enough to hold in your hand, or keep in your pocket. It helps you organise all the information you need to keep track of as a doctor. Handhelds are affordable, with prices starting at £100 for a good machine[2]. If you want extras such as a colour screen, a camera, or even a car-navigation system, you can pay more. Nevertheless, even the cheapest model is powerful enough to handle most medical software. They are also simple to use. Whereas your first brush with a desktop computer was probably a painful learning experience, you will find that a handheld is easy to pick up. You can write on one using a pen (or even your finger) and the programs are clear and functional. Nor do handheld computers crash frequently. Instead, their reliability makes them attractive for the medical setting.

There are currently two types of handheld that you should choose from: one has the "Palm Powered" logo, and the other the Microsoft "Pocket PC" or "Windows Powered" logo. Palm Powered machines are the cheapest and simplest to use, whereas Pocket PCs are preferred by IT departments. Two things to be aware of though are that most of your colleagues will have Palm Powered machines, and sharing data is easier if you have the same type of machine as your colleagues. All machines work with Microsoft Office programs such as Word and Excel, and ironically the Palm Powered machines do this job a little better than the Microsoft Pocket PC machines[3].

HanDBase Database Software
The reason that you must stick to Palm Powered or Pocket PC machines is the software that the machines run. No matter how advanced your phone is, there is little medical software available. Palm Powered and Pocket PC machines, on the other hand, have an impressive range.

One of the most important software packages that you should invest in is called HanDBase[4,5]. This is database creation software. In other words, it allows you to create electronic versions of any of the paper forms that you fill out every day in the NHS. Because the data is electronic you get the extra advantages such as fast entry, efficient backups, and powerful searches.

For logbooks, these searches are important. If you have entered the data correctly, you can search for all the patients that have had DVTs as a post-operative complication; you can count all the operations that you did without your consultant present; you can tally how many operations you did in March; or you can print a detailed report of every single operation that you took part in.

I have used HanDBase to create such a logbook. This is analogous to using Microsoft Word to create a letter. When you buy the software, you too can create your own logbook. By using my logbook rather than designing your own version you will save time and effort, and you can exchange data more easily with other colleagues who are using the same logbook. I have based the forms of my HanDBase logbook on the forms that you have to complete for the Royal College of Surgeons paper logbook. I have ensured that the translation into HanDBase format is faithful to the spirit of the paper logbook, but takes advantage of the features of handheld computers. For this I relied on my past experience in converting the NHS Personal Development Plan paper forms into HanDBase forms for GPs[6]. This logbook is freely available for your use and distribution.

Because HanDBase runs on a handheld computer, it is easy for you to enter the data correctly. First, handheld computers are easy to take with you to theatre, so you can document every operation straight after you do it. Second, I have designed the forms so that they automatically fill out certain data, such as the date of the operation. Third, the more you use the forms, the better HanDBase gets at automatically filling in other data, such as the type of the operation.

Surgical logbook HanDBase database
There are three steps to getting the surgical logbook onto your handheld computer. The first is for you to buy HanDBase through the web site[7]. The HanDBase Plus version costs $29.99 (about £17) and will do the job perfectly well, but HanDBase Pro is worth the $39.99 (about £22) price because of its advanced form features. After buying the software, you need to download and install it. www.PDAMD.com has an excellent guide that takes you through downloading and installing software[8].

The final step is to get the surgical logbook forms that I have designed to work with HanDBase. You can get a free copy from the The Journal of Surgery online (www.journal-surgery.com) or from my own site[9]. The license for the logbook allows you to make as many copies as you would like, and to share these with your colleagues. Your colleagues will of course need to buy their own copy of HanDBase to use the logbook. However if you make improvements to the logbook, I would like you tell me about these so that I can share them with other surgeons.

Filling out the forms
After you install HanDBase software and the surgical logbook, tap the "HanDBase" icon on your handheld computer. Then tap the "Surgical logbook" line, shown in figure 1.
The software asks you for the password (figure 2). Tap "OK"as the default is for no password, but the next section will show you how

to change the password. The software then shows you a list of all the operations (figure 3). Of course the list begins empty, and to document your first operation, tap the "New" button. As figure 4 shows, the "Date" line has already been completed for you, defaulting to the date on which you began completing the form. You can change the date by tapping on it. The "Patient ID" line is empty, waiting for you to add the identification number of your patient. Tap on the dotted line and start writing.

The rest of the form is self-explanatory, and similar to the paper forms from the surgical Royal Colleges (figures 5-6). However the more effort you put into the logbook, the more effort it can save you. For example, you can enter the operation name by writing on the dotted line to the right of "Operation" (figure 4). However if you tap on the triangle to the left of "Operation", a list pops up with "Edit Popup List" at the bottom. If you tap on "Edit Popup List", you have the opportunity to edit that list (figure 7). Add the names of the operations that you do most commonly. For example, if you are an ophthalmic surgeon, you could tap "New", write "Drainage of orbit" (figure 8), tap "OK" and then "OK" again. From then on, if you tap on the triangle to the left of "Operation" you will find "Drainage of orbit" is included in the list (figure 9). If you tap on that, "Drainage of orbit" is automatically filled in on the dotted line (figure 10). It is worth spending a little time tailoring all the lists (including "Operation" and "Complication") to your speciality.

Security

The logbook does not allow you to enter a patient's name. I did this for security. First, cataloging identifiable data about your patients makes you subject to the Data Protection Act. Although it is reasonably straight-forward to comply10, in the case of a logbook there is not much to gain. Furthermore the risks of data falling into the wrong hands (if, for example, you lost your machine) are too great.

As an additional security measure the logbook is encrypted and password-protected. The encryption means that every time you stop using the logbook HanDBase converts the data into a format that can only be decoded if the right password is entered. It is important that you choose a good password. At the beginning there is no password so you must change this. Tap "DB Properties" in the "Option" menu (figure 11) then tap "Security" and "Set Access Password". The software asks you to choose any password, which can be as long as you want and contain any combination of letters and numbers. For speed on the wards, you should stick to numbers because HanDBase provides you with a number pad. For security, you should choose a number at least six digits in length, and avoid predictable sequences (like '111111' or your date of birth).

Advanced features

The full advantages of using electronic logbooks become apparent when you have to audit your surgical outcomes or summarise your surgical experiences. HanDBase allows you to create reports, search the data or highlight particular operations. The user manual contains full documentation of these features and you should read the sections about "Search Database", "Filters" and "Reports". This software gives you more tools than Osler ever had access to.

Conflicting Interests

I am the author of the book Handheld Computers for Doctors and the accompanying website www.handheldsfordoctors.com which sells handheld computers.

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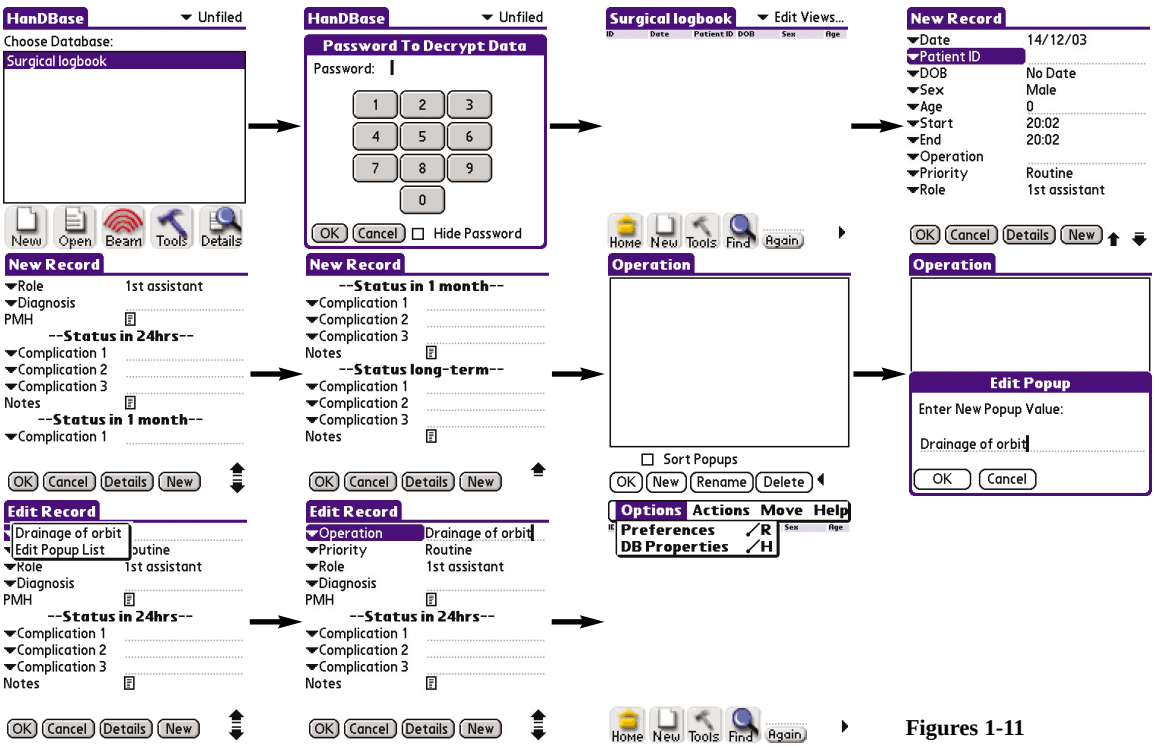

Figures 1-11